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Fig. 1A: Genes Upregulated in Normal Human T cells by Glutamate

GLUT vs Control

coordinate	Gene
C06d	CLATHRIN LIGHT CHAIN B (BRAIN AND LYMPHOCYTE LCB).
A11d	CCAAT/ENHANCER BINDING PROTEIN BETA (C/EBP BETA) (NUCLEAR FACTOR NF-IL6) (TRANSCRIPTION FACTOR 5).
B11j	HEAT SHOCK PROTEIN HSP40-3.
D11i	GLUTAMINYL-TRNA SYNTHETASE (EC 6.1.1.18) (GLUTAMINE--TRNA LIGASE) (GLNRS).
A12d	PROTEIN INHIBITOR OF ACTIVATED STAT PROTEIN PIASY.
C05l	ASIALOGLYCOPROTEIN RECEPTOR 1 (HEPATIC LECTIN H1) (ASGPR) (ASGP-R).
C07k	POLYPEPTIDE N-ACETYLGALACTOSAMINYLTRANSFERASE (PROTEIN-UDP ACETYLGALACTOSAMINYLTRANSFERASE) (UDP-GALNAC:POLYPEPTIDE, N-ACETYLGALACTOSAMINYLTRANSFERASE) (GALNAC-T2)
D01k	DIHYDROLIPOAMIDE DEHYDROGENASE, MITOCHONDRIAL PRECURSOR
C09k	ATP SYNTHASE LIPID-BINDING PROTEIN P3 PRECURSOR (EC 3.6.1.34) (ATPASE PROTEIN 9) (SUBUNIT C).
F09h	HYPOTHETICAL 21.7 KD PROTEIN
C02l	CARTILAGE INTERMEDIATE LAYER PROTEIN.
E10k	Homo sapiens mRNA for ADP ribosylation factor-like protein
F13n	KE05 PROTEIN
A13i	SWI/SNF COMPLEX 60 KDA SUBUNIT.
B09h	CATHEPSIN E PRECURSOR (EC 3.4.23.34).
C03i	Homo sapiens mRNA for Epsilon COP
A10c	H-2K BINDING FACTOR-2.
B03g	SPLICING FACTOR, ARGININE/SERINE-RICH 6 (PRE-MRNA SPLICING FACTOR SRP55)
B08k	RAPAMYCIN-SELECTIVE 25 KD IMMUNOPHILIN (FKBP25) (PEPTIDYL-PROLYL CIS-TRANS ISOMERASE) (EC 5.2.1.8) (PPIASE) (ROTAMASE).
A14g	MATRIN 3 (FRAGMENT).
C07i	OVIDUCT-SPECIFIC GLYCOPROTEIN PRECURSOR (OVIDUCTAL GLYCOPROTEIN) (OVIDUCTIN) (ESTROGEN-DEPENDENT OVIDUCT PROTEIN).
B14l	STIMULATOR OF FE TRANSPORT.

Fig. 1B: Genes Downregulated in Normal Human T cells by Glutamate

GLUT vs Control

Coordinate	Gene
B08a	MEMBRANE-ASSOCIATED PROTEIN HEM-1 (HEMATOPOIETIC PROTEIN HEM-1).
C03a	COLLAGEN ALPHA 5(IV) CHAIN PRECURSOR.
B05d	CULLIN HOMOLOG 1 (CUL-1).
D10m	INDUCIBLE POLY(A)-BINDING PROTEIN.
D14d	SPLICEOSOMAL PROTEIN SAP 155 (PUTATIVE NUCLEAR PROTEIN).
F11i	PBK1 PROTEIN
A03b	DORA PROTEIN PRECURSOR.
A03c	NKG2F MRNA.
B04n	ENHANCER OF RUDIMENTARY HOMOLOG.
C06c	MITOCHONDRIAL IMPORT RECEPTOR SUBUNIT TOM20 HOMOLOG (MITOCHONDRIAL 20 KD OUTER MEMBRANE PROTEIN) (OUTER MITOCHONDRIAL MEMBRANE RECEPTOR TOM20) (KIAA0016).
C14g	ORNITHINE AMINOTRANSFERASE PRECURSOR (EC 2.6.1.13) (ORNITHINE--OXO- ACID AMINOTRANSFERASE).
D03e	ACYL-COA DESATURASE (EC 1.14.99.5) (STEAROYL-COA DESATURASE) (FATTY ACID DESATURASE) (DELTA(9)-DESATURASE).
D05d	12.6 KD FK506-BINDING PROTEIN (FKBP-12.6) (PEPTIDYL-PROLYL CIS-TRANS ISOMERASE) (EC 5.2.1.8) (PPIASE) (ROTAMASE) (IMMUNOPHILIN FKBP12.6).
D11g	HISTIDYL-TRNA SYNTHETASE HOMOLOG (EC 6.1.1.21) (HISTIDINE--TRNA LIGASE HOMOLOG) (HISRS).
D12i	NUCLEAR PROTEIN, NP220
E08f	(H326).
E09i	RETICULOCALBIN 1 PRECURSOR.
F12i	MEA6
F13h	PLATELET ACTIVATING RECEPTOR HOMOLOG
A08b	TRANSCRIPTION INITIATION FACTOR TFIID 18 KD SUBUNIT (TAFII-18) (TAFII18).
C08j	MALATE DEHYDROGENASE, CYTOPLASMIC
C13g	PYRROLINE-5-CARBOXYLATE REDUCTASE (EC 1.5.1.2) (P5CR) (P5C REDUCTASE).
C14a	ORNITHINE CARBAMOYLTRANSFERASE PRECURSOR (EC 2.1.3.3) (OTCASE) (ORNITHINE TRANSCARBAMYLASE).
D01b	5-AMINOLEVULINIC ACID SYNTHASE, ERYTHROID-SPECIFIC, MITOCHONDRIAL PRECURSOR (DELTA-AMINOLEVULINATE SYNTHASE) (DELTA-ALA SYNTHETASE) (ALAS-E)
D01d	ASMTL PROTEIN.
D02h	HEPARAN-SULFATE 6-SULFOTRANSFERASE.

Fig. 1C: Genes Downregulated in Normal Human T cells by Glutamate

D03a	SELENIDE,WATER DIKINASE 2 (SELENOPHOSPHATE SYNTHETASE 2) (SELENIUM DONOR PROTEIN 2)
D03h	IDURONATE-2-SULFATASE.
D05b	36 KDA FK506 BINDING PROTEIN.
D05g	CYTOCHROME OXIDASE ASSEMBLY FACTOR.
D05h	H-SCO1.
E02l	ACTIN-RELATED PROTEIN.
E02n	MAJOR CENTROMERE AUTOANTIGEN B (CENTROMERE PROTEIN B) (CENP-B).
E03a	RANBPM.
E03j	KIN17 PROTEIN.
E11b	DYSFERLIN.
E13a	UBIQUITIN CARBOXYL-TERMINAL HYDROLASE 5 (EC 3.1.2.15) (UBIQUITIN THIOLESTERASE 5) (UBIQUITIN-SPECIFIC PROCESSING PROTEASE 5) (DEUBIQUITINATING ENZYME 5) (ISOPEPTIDASE T).
F01a	26S PROTEASE REGULATORY SUBUNIT 4 (P26S4).
F10j	SH3 DOMAIN BINDING GLUTAMIC ACID-RICH-LIKE PROTEIN
F12a	PINCH PROTEIN (PARTICULARY INTERESTING NEW CYS-HIS PROTEIN)
F13b	FB19 PROTEIN
F13g	HIS1 PROTEIN
F14k	APK1 ANTIGEN
F14n	HIC protein
D04k	Homo sapiens lysyl hydroxylase
A04c	DNA-DIRECTED RNA POLYMERASES I, II, AND III 7.0 KD POLYPEPTIDE (ABC10-ALPHA) (RPB7.0)
D03f	CARBONYL REDUCTASE [NADPH] 3 (EC 1.1.1.184) (NADPH-DEPENDENT CARBONYL REDUCTASE 3).
D14m	CLEAVAGE AND POLYADENYLATION SPECIFICITY FACTOR, 160 KD SUBUNIT (CPSF 160 KD SUBUNIT)
A02j	GLYPICAN-1 PRECURSOR.
C03g	SKD1 HOMOLOG.
D10d	EUKARYOTIC TRANSLATION INITIATION FACTOR 1A (EIF-1A) (EIF-4C).
E10f	SHK1 KINASE-BINDING PROTEIN 1.
A01m	SMCY.
A07i	ZINC FINGER PROTEIN (FRAGMENT).
B02i	SPLICING FACTOR, ARGININE/SERINE-RICH 4 (PRE-MRNA SPLICING FACTOR SRP75)
C07b	MALTASE-GLUCOAMYLASE, INTESTINAL [INCLUDES: MALTASE (ALPHA-GLUCOSIDASE); GLUCOAMYLASE (GLUCAN 1,4-ALPHA- GLUCOSIDASE)]
C07m	GLUCOSYLTRANSFERASE (FRAGMENT).
C10f	ELECTRON TRANSFER FLAVOPROTEIN BETA-SUBUNIT (BETA-ETF).
C11h	PHOSPHATIDYLINOSITOL GLYCAN, CLASS H

Fig. 1D: Genes Downregulated in Normal Human T cells by Glutamate

C14j	5-FORMYLTETRAHYDROFOLATE CYCLO-LIGASE (5,10-METHENYL- TETRAHYDROFOLATE SYNTHETASE) (METHENYL-THF SYNTHETASE) (MTHFS)
C14k	S-ADENOSYLMETHIONINE DECARBOXYLASE PROENZYME (EC 4.1.1.50) (ADOMETDC).
D13i	U2 SMALL NUCLEAR RIBONUCLEOPROTEIN A' (U2 SNRNP-A').
E07k	ADP-RIBOSYLATION FACTOR-LIKE PROTEIN 1.
F08a	KIAA0436
D02a	ADENOSYLHOMOCYSTEINASE (EC 3.3.1.1) (S-ADENOSYL-L-HOMOCYSTEINE HYDROLASE) (ADOHCYASE).
D06f	60S RIBOSOMAL PROTEIN L7.
A06k	ZINC FINGER PROTEIN ZFP2 (FRAGMENT).
C09g	MALATE OXIDOREDUCTASE [NAD], MITOCHONDRIAL PRECURSOR (MALIC ENZYME) (ME)
E02k	LAMIN B1.
C13a	ARGININOSUCCINATE SYNTHASE (EC 6.3.4.5) (CITRULLINE--ASPARTATE LIGASE).
D04h	38 KD FK-506 BINDING PROTEIN HOMOLOG (FKBPR38).
E10b	MYOSIN LIGHT CHAIN 1, SLOW-TWITCH MUSCLE A ISOFORM (MLC1SA) (ALKALI)
C11b	SUCCINATE DEHYDROGENASE [UBIQUINONE] CYTOCHROME B SMALL SUBUNIT PRECURSOR (CYBS) (SUCCINATE-UBIQUINONE REDUCTASE MEMBRANE ANCHOR SUBUNIT) (QPS2) (CII-4) (SUCCINATE DEHYDROGENASE COMPLEX SUBUNIT D).
E02j	LAMIN C.
D07d	60S RIBOSOMAL PROTEIN L24 (L30).
D01l	ALKALINE PHOSPHATASE, PLACENTAL TYPE 3 PRECURSOR
D12c	DRAK2.
A04n	BASIC HELIX-LOOP-HELIX TRANSCRIPTION FACTOR.
C07c	GDP-D-MANNOSE-4,6-DEHYDRATASE
E06d	AMYLOID PROTEIN-BINDING PROTEIN 1.
E10n	A-KINASE ANCHORING PROTEIN.
F14l	IBD2

Fig. 1E: Glutamate-Mediated Induction of Bomapin Gene Expression in Normal Human T-Cells

RT-PCR of Bomapin mRNA after 72 hours incubation

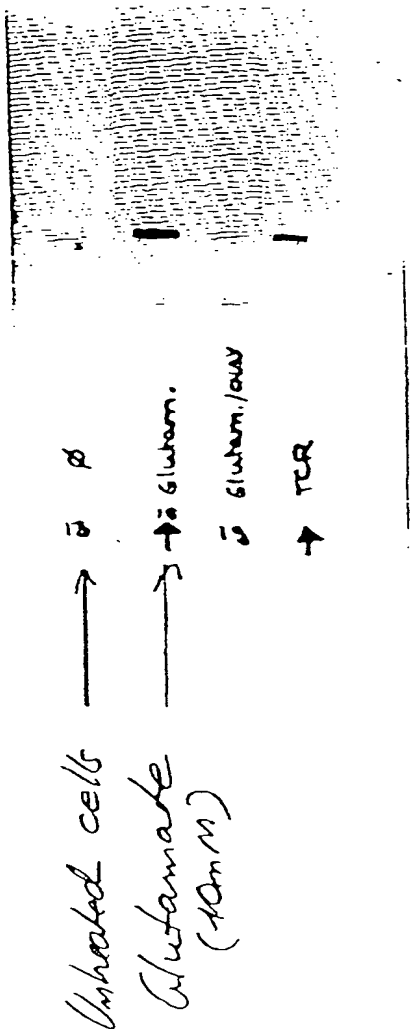


Fig. 2: Glutamate-Mediated Induction of "Typical" Cytokine Secretion in Resting Human T-cell Clones

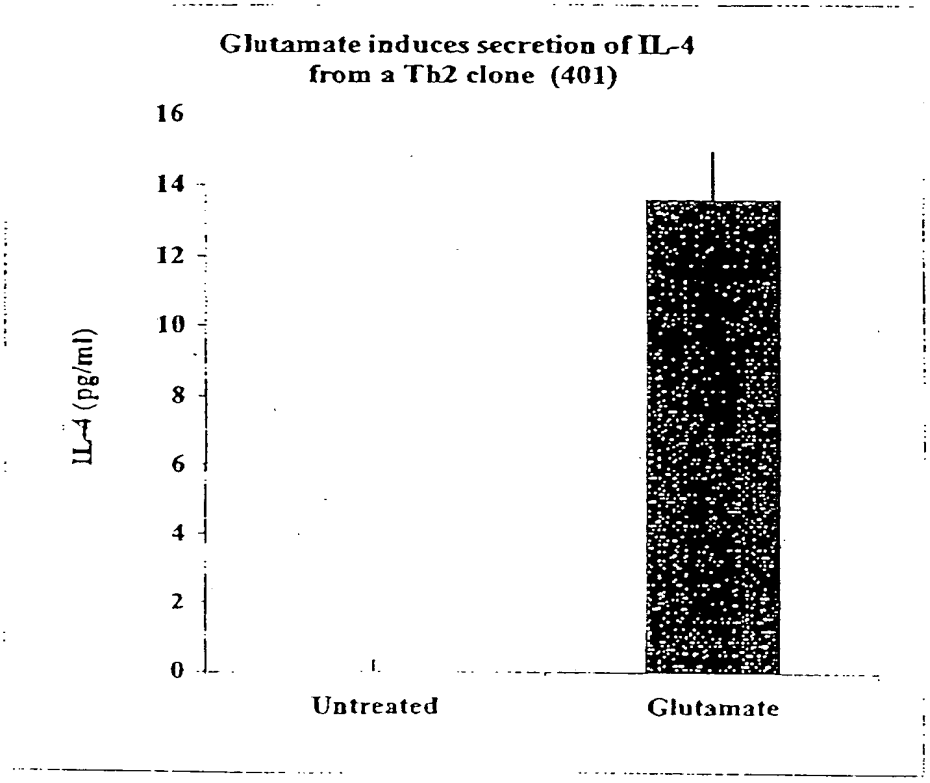


Fig. 3: Glutamate-Mediated Induction of "Forbidden" Cytokine Secretion in Resting Human T-cell Clones

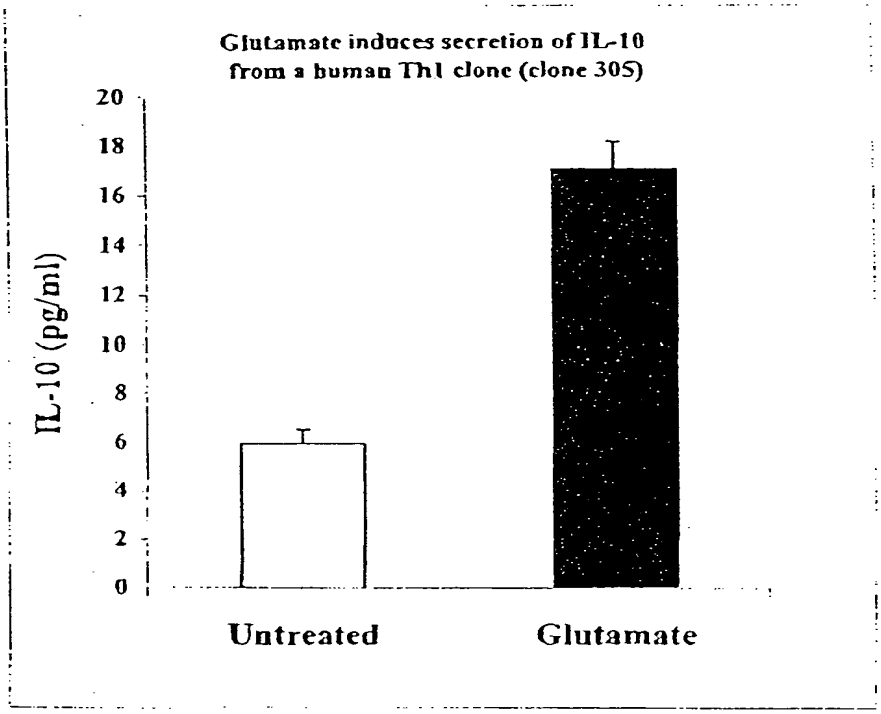


Fig. 4: Glutamate-Mediated Induction of "Forbidden" Cytokine Secretion in Resting Human T-cell Clones

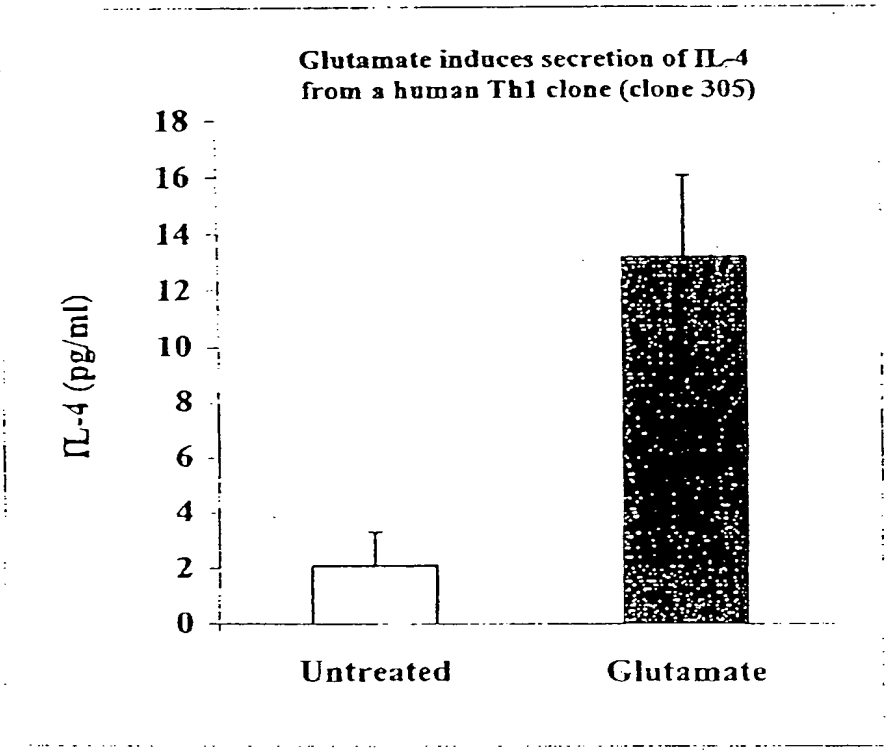


Fig. 5 Glutamate-Mediated Induction of Cytokine Secretion in Stimulated Human T-cell Clones

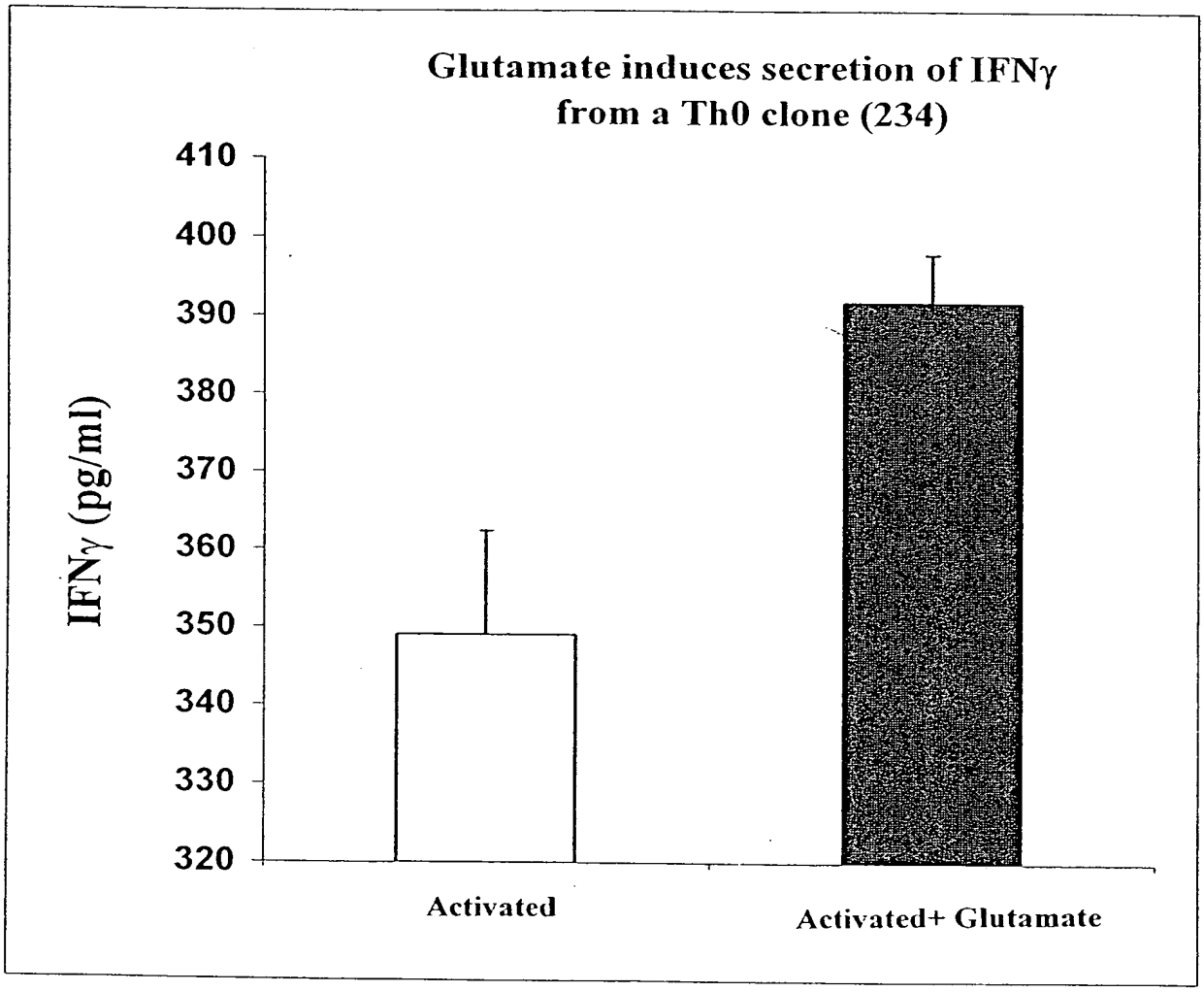


Fig. 6: Glutamate-Mediated Induction of Cytokine Secretion in Stimulated Human T-cell Clones

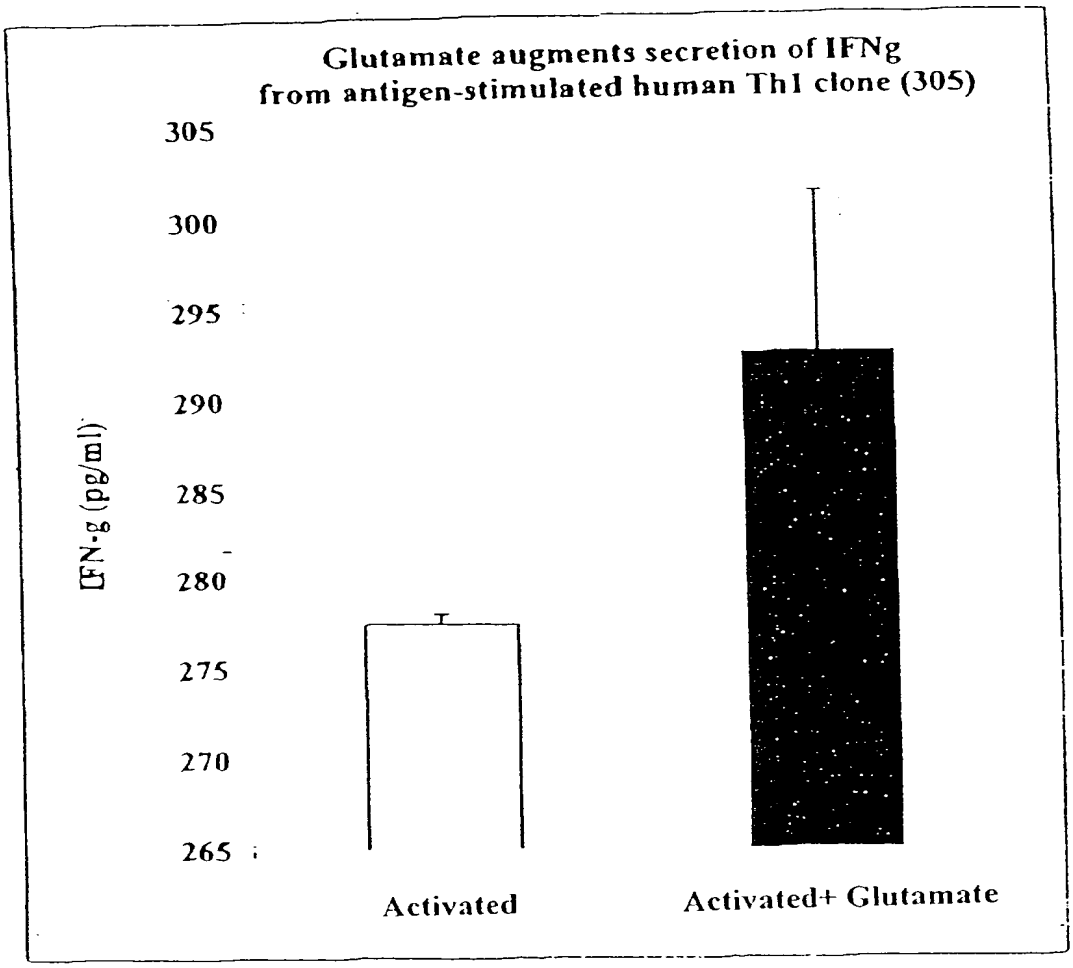


Fig. 7A: Glutamate-Mediated Induction of Fibronectin Adhesion in Normal Human T-cells

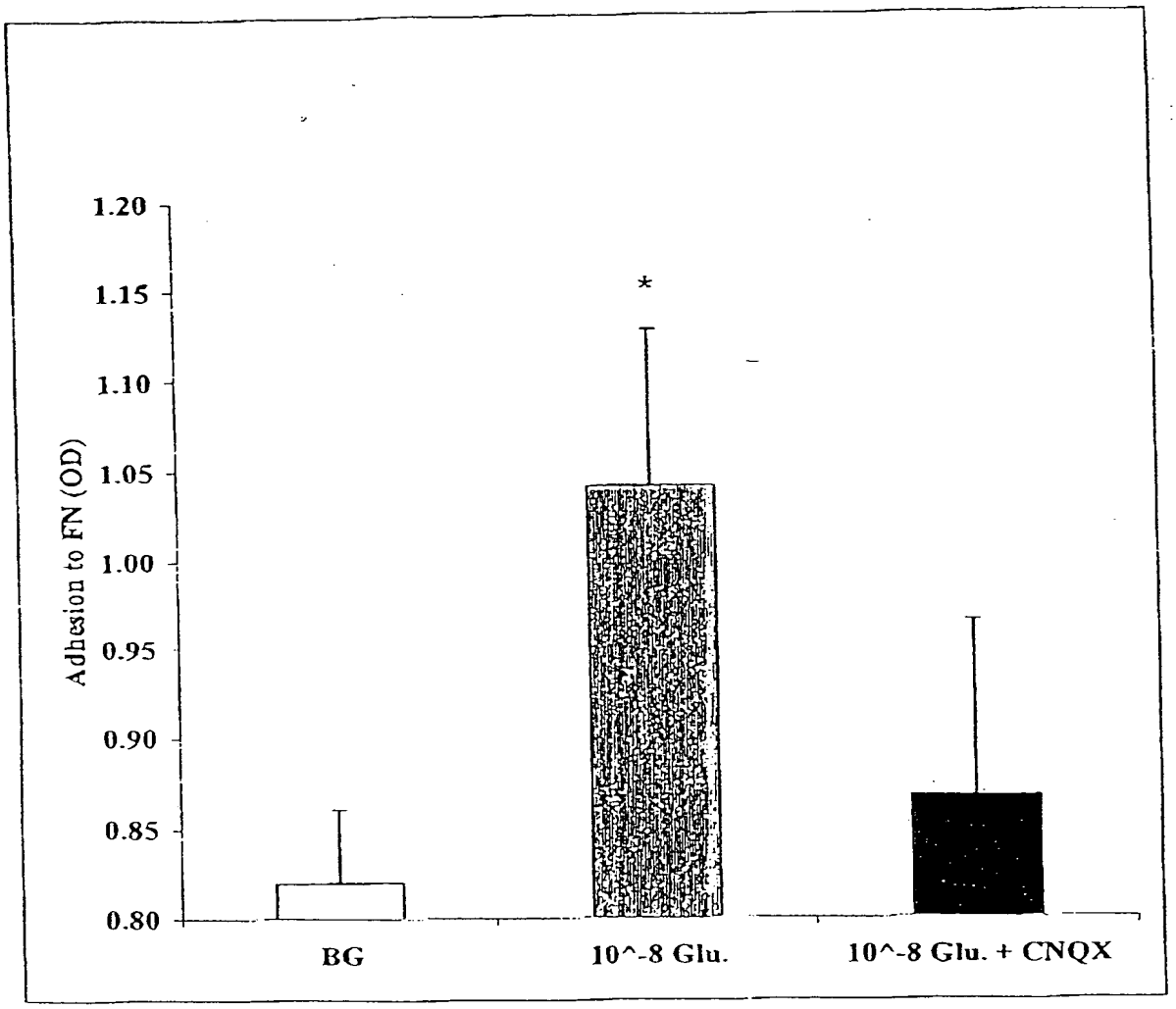


Fig. 7B: Glutamate-Mediated Induction of Laminin Adhesion in Normal Human T-cells

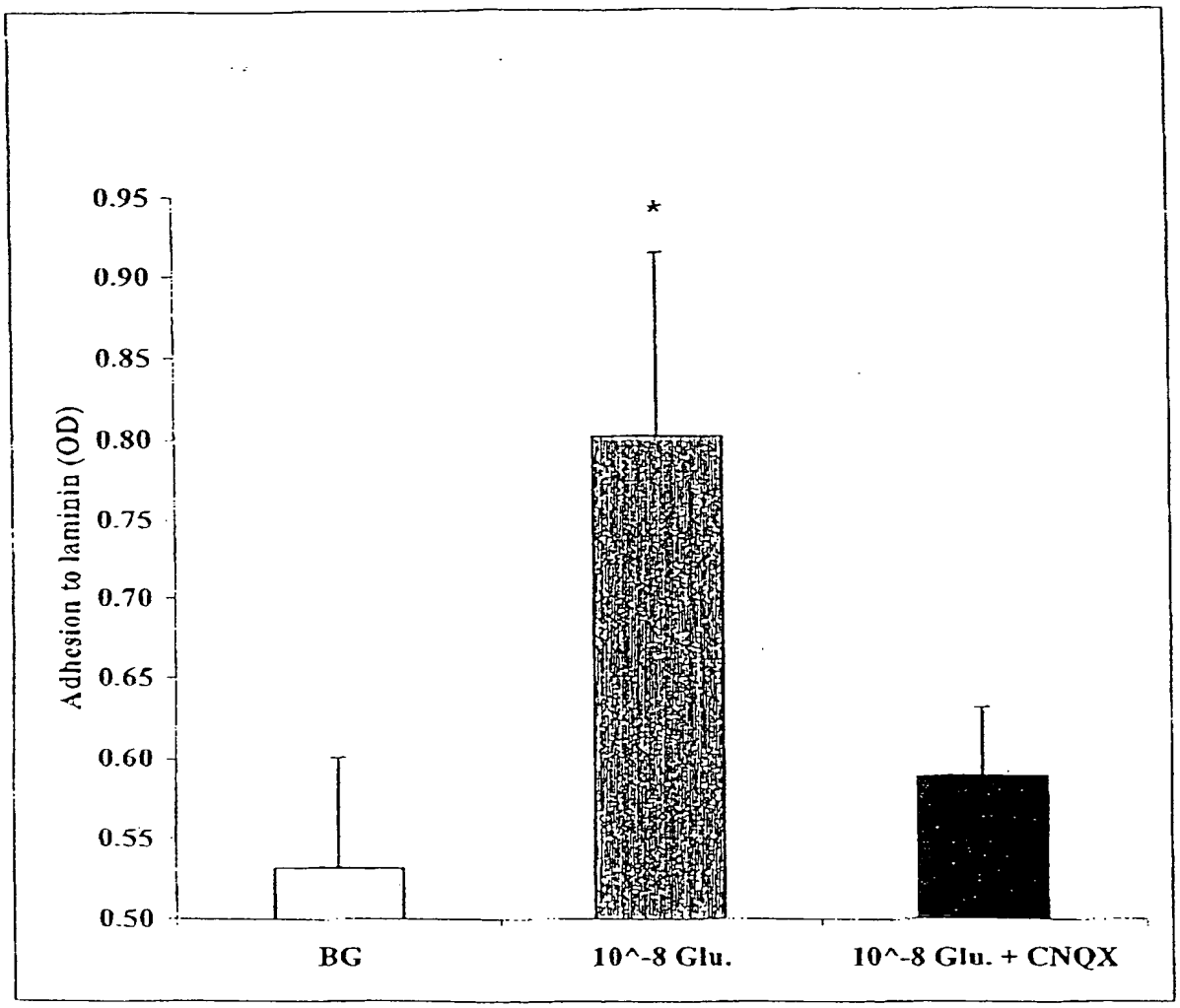


Fig. 8: Glutamate-Induced Migration of Normal Human T-cells Towards Chemokine

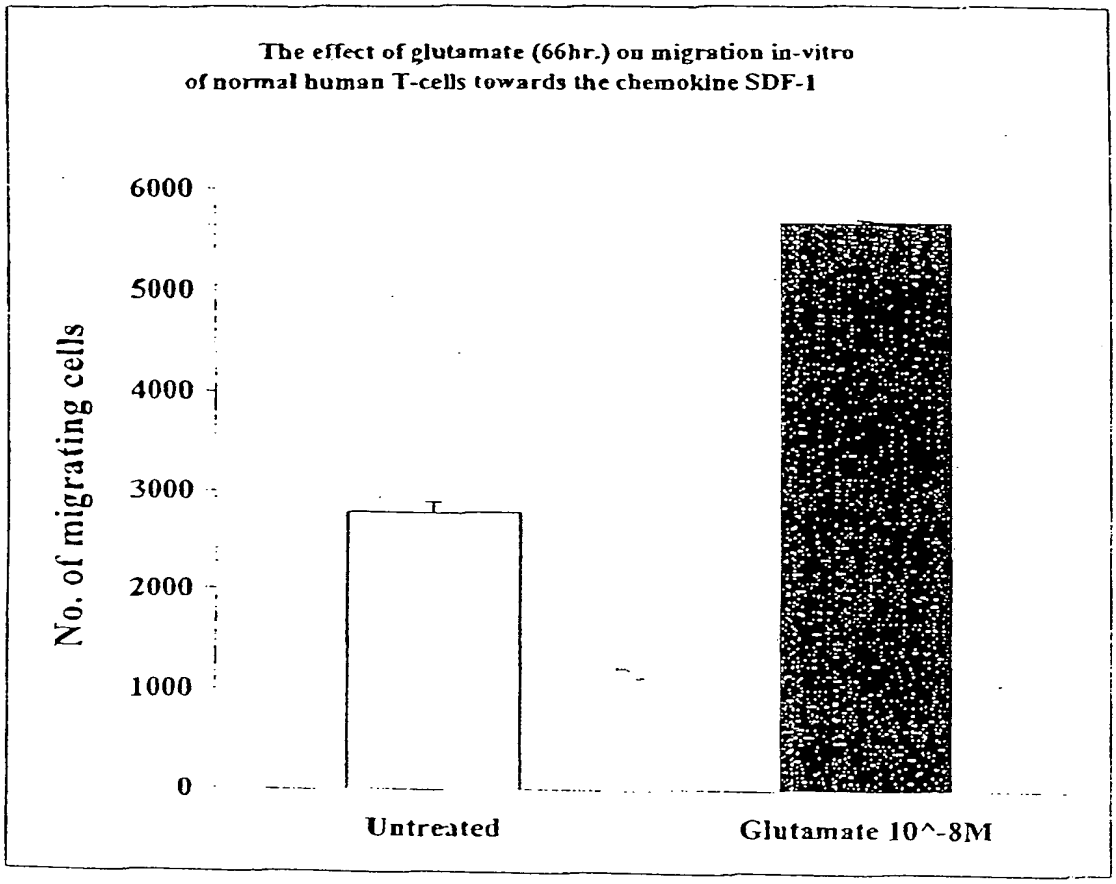


Fig. 9: Glutamate Downregulates GluR3 Receptor Expression in Normal Human T-cells

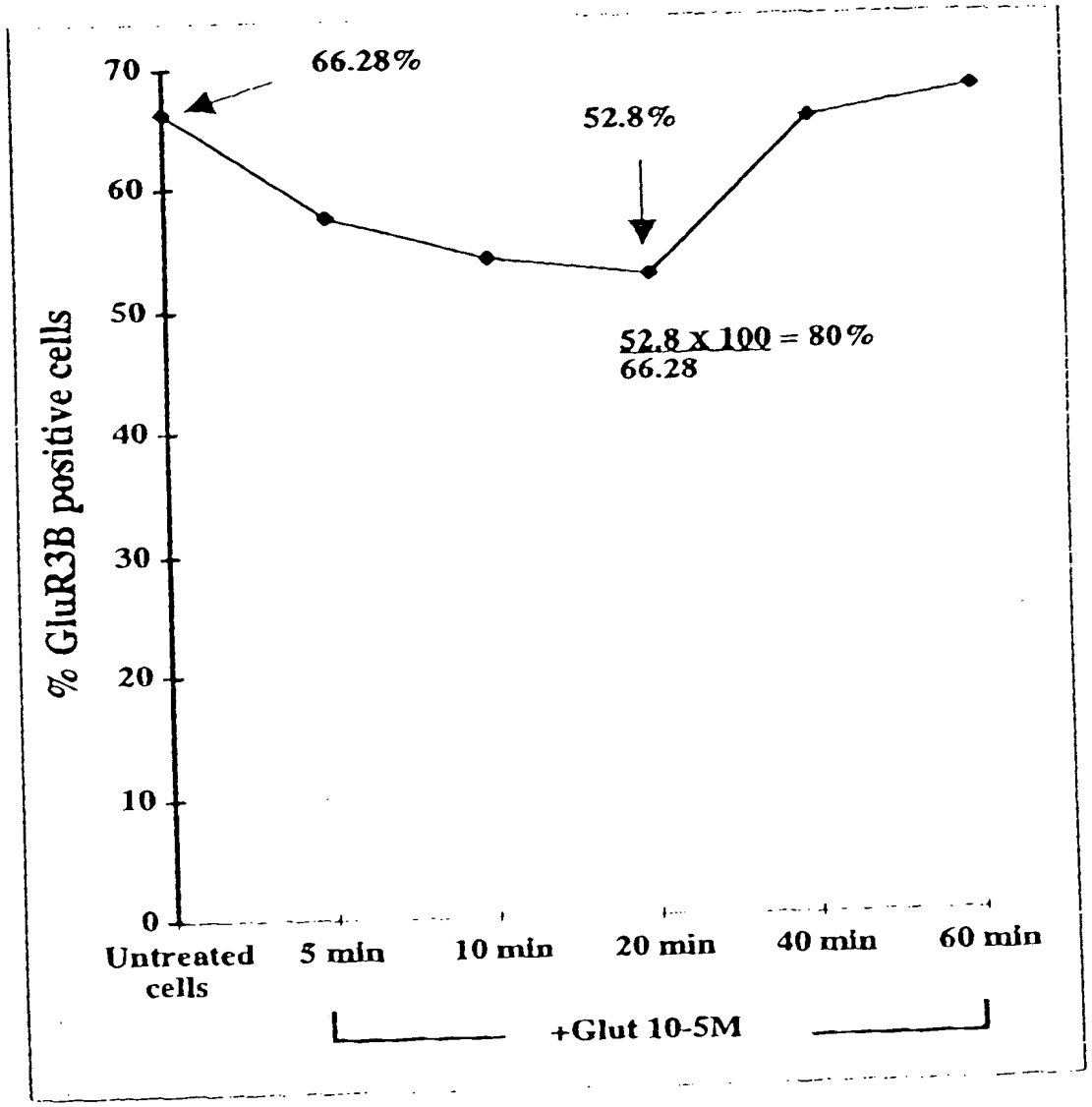
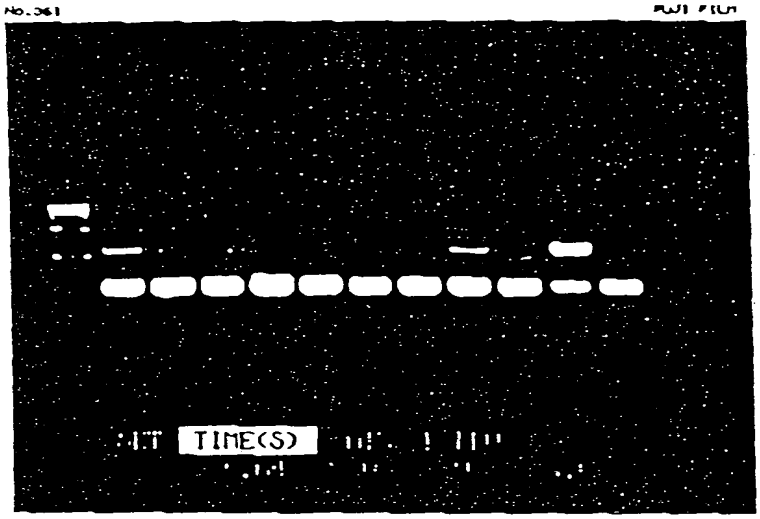


Fig. 10A: Glutamate Inhibits GluR3 Receptor Gene Expression in Normal Human T-cells (*Experiment 1*)



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Untreated cells

+ Glutamate (10mM)

Fig. 10B: Glutamate inhibits GluR3 Receptor Gene Expression in Normal Human T-cells (*Experiment 2*)